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SOME ECONOMIC PROBLEMS OF RAILROAD VALUATION

On March 31, 1913, Congress enacted a law directing the Interstate Commerce Commission to investigate, ascertain, and report the value of all property owned or used by every common carrier subject to the provisions of the Interstate Commerce act. The commission is required to report in detail as to each piece of property, "the original cost to date, the cost of reproduction new, the cost of reproduction less depreciation, and an analysis of the methods by which these several costs are obtained, and the reasons for their differences, if any." The act provides further:

> The commission shall in like manner ascertain and report separately other values, and elements of value, if any, of the property of such common carrier, and an analysis of the methods of valuation employed, and of the reasons for any differences between any such value, and each of the foregoing cost values.
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> Second. Such investigation and report shall state in detail and separately from improvements, the original cost of all lands, rights of way, and terminals owned or used for the purposes of a common carrier, and ascertained as of the time of dedication to public use, and the present value of the same, and separately the original and present cost of condemnation and damages or of purchase in excess of such original cost or present value.
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> Third. Such investigation and report shall show separately the property held for purposes other than those of a common carrier, and the original cost and present value of same, together with an analysis of the methods of valuation employed.

The broad requirements of the act place a stupendous task on the commission and on the railroads. The necessity of concentration of effort and of coöperation between the government authorities and the carriers was manifest from the outset. The Interstate Commerce Commission promptly organized a department of valuation, which is being assisted by a general conference committee of railroad presidents, by engineering committees of the railroads, and by the valuation departments of the individual companies.

Because of the magnitude of the work, progress in outlining definite policies and procedure has been slow. Conferences between representatives of the commission and of the railroads will result in definite and standard instructions regarding certain matters of procedure. But the important economic problems involved in the question of valuation have not been worked out; and this paper is concerned with the difficulties in solving these problems.

One of the principal sources of difficulty which will probably be met throughout the whole task of valuation is the lack of definite terminology. There is nothing in the congressional act to indicate that any limitation upon the meaning of "value" was intended, or that "value" in its broadest sense was not meant, or that the valuation is to be for any particular purpose. The legal theory of fair value is comparatively new. The Supreme Court in a frequently quoted opinion (*Smith* v. *Ames*) has laid down certain elements of value, but has not weighed them in any definite scale.[1] Moreover, in the numerous opinions of courts, commissions, and legislatures, there is a constant and seemingly unavoidable confusion of "cost" and "value." This has resulted in a distortion of the economic concept of value, and a substitution of engineering and accounting opinions for the standard dicta of classical economists. The terms "physical value" and "fair value"—now so flagrantly misused—have not the definiteness of concept which economists of the past generation considered essential for the establishment of an economic doctrine.

Merely to summarize the many conflicting definitions of the various kinds of "cost" and "value" requires greater space than is afforded by this paper. Dr. Whitten, in his excellent treatise,[2] attempted to cover the field fully, but since its first publication, in 1912, so many new opinions have been uttered and so much new material accumulated that he has recently issued a supplementary volume. There is evidence in the Valuation act that Congress legislated with no fixed ideas regarding the elements of "cost" and "value." The broad scope of the law has led Mr. Prouty, director of valuation, to interpret it as something more than a mere engineering problem.

> It is for the commission to marshal every fact obtainable with respect to the present condition and the past history of our railways, and from a just consideration of all these facts to determine the fair values of all the properties today.[3]

[1] The elements of "fair value" as stated by Justice Harlan are: "The original cost of construction, the amount expended in permanent improvements, the amount and market value of bonds and stock, the present as compared with the original cost of construction, the probable earning capacity under particular rates prescribed by statute, and the sum required to meet operating expenses are *all matters for consideration* and are to be given such weight as is just and right."

[2] *Valuation of Public Service Corporations.*

[3] Address delivered at the second annual meeting of the Chamber of Commerce of the United States, Feb. 11, 1914 (*Ry. Age Gaz.*, Feb. 13, 1914).

Some of the matters requiring careful consideration before the work of federal valuation is completed are:

1. The basis of "reproduction cost";
2. The so-called non-physical costs;
3. The basis of determining depreciation and appreciation;
4. The valuation of right-of-way and other real estate.

1. *The basis of reproduction cost.* The Valuation act requires the Interstate Commerce Commission to investigate and to report in detail the "cost of reproduction new and the cost of reproduction less depreciation." Inasmuch as the "cost of production" in many public utility controversies has been made the basis of "fair value for rate making purposes," the estimate of reproduction cost seems to be regarded by the commission as the most serious problem of its valuation work.[4] The initial task is the adoption of a standard conception of "reproduction cost." At the present time there are numerous conceptions. Cost of reproduction may mean the cost of a substantially identical reproduction of the existing plant; it may mean cost of a substitute plant of the most modern approved design capable of performing the same service as the existing plant; or the cost (at present prices of land, labor, and materials) of reproducing the existing plant under the actual conditions of its original construction.

Discussion of reproduction cost may be confined to one question, namely, whether the estimate should be based on the actual conditions under which the property was promoted and built, or whether present conditions of construction and organization shall be assumed. Mr. H. P. Gillette, an engineer of considerable valuation experience, holds that the appraiser must base his appraisal on the actual conditions under which the property was built and operated:

> If trees were cleared, then he must allow for the cost of clearing, though not a tree may now be standing. If streets were graded, then the grading must be estimated, although to-day the entire city is as level as a floor. If quicksand was encountered in laying a pipe line, then the added cost of excavating it must be allowed even though subsequent works have drained the line so that it no longer has a yard of quicksand. If money was spent to educate the public to the use of the commodity sold by the corporation, then the money is a develop-

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[4] Circuit Judge Sandborn, in *Shepherd* v. *Northern Pacific Railway Co.* (184 Fed. 765), held that the "master rightly decided that the cost of reproducing this property new was a more rational and reliable measure of its real value than the original cost of its acquisition or the market values of the stocks and bonds of the companies; and upon that basis he made his findings."

ment expense which must be allowed even though the expense would not be incurred by a new corporation of like character. If the corporation has built railway lines to develop a country and has not only spent money to get people to settle there but has experienced deficits below a fair return on its investment until the country has become sufficiently populated, then this development expense must be allowed.[5]

This theory is opposed by those who contend that "reproduction" means replacement and has reference only to the present. So varied have been the opinions on this point that Dr. Whitten in a recent article proposes a compromise; namely, "normal actual cost."[6] This would allow for actual cost of reproduction only when the conditions under which the property was constructed were normal conditions.

The assumption of "reproduction cost" under present conditions entails a proper and careful computation of "unit prices" in addition to the task of estimating the ratio of contingent and other non-physical costs. The replacement cost is the sum of money which would have to be expended at the present time to reproduce a physical property identical with that in existence and used for the benefit of the public. In arriving at the cost an inventory of the entire physical property must be made and to every unit found in the plant must be applied costs representative of what would have to be paid today for the material and for the labor necessary to place the material in the position now occupied by the existing plant. Thus, the estimate of unit costs involves (a) a determination of the price of physical material and equipment at the place of erection, (b) the cost of labor of placement, including engineering, supervision, wastes, and contingencies, and (c) expense due to lapse of time represented by interest on capital during construction.

The estimates of unit prices of material are naturally based on current market quotations, with the addition of the cost of handling and of carriage. As pointed out by Mr. William J. Wilgus in the valuation of the Lehigh Valley Railroad, materials may be of two classes with respect to prices: (a) those that rise and fall with financial and industrial conditions and should therefore be based on averages over a period of years; and (b) those that show an upward price tendency, such as ties, piling, lumber, ballast, etc. The reproduction cost of the latter is more properly based on current quotations at the time of valuation. In all cases it is essential to add to or include in the estimated price, the cost of carriage, handling, and storing. In estimating this class of supplementary expenses, it is logically to be assumed that the facilities of the transportation company undergoing valuation do not exist. In other words, "proper additions should be made to current prices to ascertain what would be the correct unit prices for the railway and its branches if these were assumed as being blotted out."[7]

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[5] *Proceedings of the American Society of Civil Engineers,* vol. LXXIII, p. 382.

"Fair Value for Rate Purposes," *Harvard Law Review,* vol. XXIII, p. 18.

Another supplementary item of expense likely to be overlooked in estimates of reproduction cost is the incidental waste arising from the necessity of having surplus supplies of materials on the ground. The removal of small unused portions is frequently uneconomical. On the other hand, a deficiency in supplies, though of very small amount, may result in loss of time and added costs. Abandonment of surplus materials such as unused ballast and cement, broken bundles of shingles, cut timber, and the like, is an incidental feature of all construction and therefore an element of reproduction cost.

Unit prices of labor are far more difficult to determine in estimates of reproduction cost than are material prices. On a large piece of work, such as the building of a trunk line railroad, it cannot properly be assumed that the labor supply is as readily available as on a small piece of construction. For not only is there a limited labor supply relative to the demand, but also inability to obtain the most competent contractors on all parts of the work. This condition was experienced in the building of the first New York City subways, when the intensified demand for certain classes of labor led to the payment of wages much above the prevailing rates. Moreover, it is a well-known fact that in times of industrial prosperity and increased demand for labor, inefficient employees, who in dull times would not be accepted, come in on the same terms as the efficient, resulting in higher costs relative to productivity. Matters of this kind do not admit of exact mathematical computation, yet due consideration must be given them in equitable appraisals of "reproduction value."

2. *Non-physical costs.* It is freely admitted that whatever policy of valuation is adopted, full allowance is to be made for the so-called non-physical costs. These expenses are usually

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[7] J. E. Willoughby in *Proceedings of the American Society of Civil Engineers* (April, 1914), p. 1161.

classified as interest, engineering, and contingencies. They comprise all outlays involved in the inauguration, acquisition, assembling, and installing of the physical factors of a plant or property. Such charges are inseparable parts of the cost of placement, but bear no fixed relation to the cost of materials or of labor. Unless records of actual outlays are available, therefore, considerable difficulty is experienced in establishing a proper basis for their computation. In public utility valuations made by state authorities, the "non-physical" costs have varied from 5 per cent to 35 per cent of the physical costs. It is a known fact that in most cases there has been no "experience" basis for the estimate. No means are available for standardizing these costs. Few properties, however similarly constructed and similarly situated, have the same rates of "overhead" charges. The prices of rails, ties, bricks, etc., are readily obtainable; freight charges are known; and labor costs in the placement of material can be approximated; but the specialized services of deliberating, planning, devising, promoting, experimenting, and superintending bear no fixed relation to the current cost of the materials or to the prevailing rates of wage remuneration. Moreover, *time* is an important factor in construction costs. The "quantities" of time are as much dependent on the play of the elements as on human energy.

The estimate of interest on capital outlay during construction is an exceedingly complex problem. Interest is ordinarily computed and paid at semi-annual intervals. Accordingly, if the construction period extends beyond a half year, the rate, to represent "actual normal cost," should be compounded. The absence of compounding would mean a considerable reduction in the reproductive cost of large railroad systems. Mr. Wilgus, in his appraisal of the Lehigh Valley, estimated that by compounding interest during the estimated period of construction on the $352,000,000 of capital, the total reproduction cost was enlarged by $18,150,000. It can hardly be claimed that the requirement of compounding is unnecessary because the capital outlay is not immediate but is made only as the work progresses. It has long been regarded as a sound financial maxim that the capital required for a business enterprise should be fully available at the outset, for otherwise costly delays may result at some stage because of lack of funds. When capital is awaiting investment, it rarely receives a return even approximate to that which must be paid for its permanent use.

In estimates of reproduction cost, the concept of "going value" as an element of capital outlay appears to be assuming definite shape. Probably the best explanation of this concept is contained in a recent opinion of the New York Court of Appeals in *Public Service Commission* v. *Kings County Lighting Company:*

> It takes time to put a new enterprise of any magnitude on its feet after the construction work has been finished. . . . The company starts out with the "bare bones" of the plant, to borrow Justice Lurton's phrase in the Omaha Water Works case (*supra*). By the expenditure of time, labor and money, it coördinates those bones into an efficient working organism and acquires a paying business. The proper and reasonable cost of doing that, whether included in operating expenses or not, is as much a part of the investment of the company as the cost of the physical property.
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> The investors in a new enterprise have to be satisfied as a rule with meager or no returns while the business is being built up. In a business subject only to the natural laws of trade, they expect to make up for the early lean years by large profits later. In a business classified among public callings, the rate-making power must allow for the losses during the lean years, or their rate will be confiscatory and of course will drive investors from the field. In the former class, the value of the established business is a part of the "good will" and may be determined by taking a given number of years' purchase of the profits, or exchange value may be considered. In the latter case, a different rule must be adopted. . . . Obviously, the most satisfactory method is to show the actual experience of the company, the original investment, its earnings from the start, the time actually required and expenses incurred in building up the business, all expenditures not reflected by the present condition of the physical property, the extent to which bad management or other causes prevented or depleted earnings and any other facts bearing on the question, keeping in mind that the ultimate fact to be determined is not the amount of the expenditures, but the deficiency in the fair return to the investors due to the causes under consideration.[8]

In the foregoing opinion it is readily apparent that "going value" is closely akin to what is frequently termed "development costs."[9] Expenditures representing "going value" comprise not only the initial outlays for establishing a sound business on a paying basis, but also certain losses arising from property abandonments and changes in physical structure required to perform properly the service of transportation. Thus, the losses caused by changing a narrow gauge line to a standard gauge when brought about by a growth of business stimulated by the initial road, is to all intents and purposes a "developmental" cost. The business furnished by the territory traversed when the line was first constructed may not have been sufficient to warrant the capital outlay required by a standard gauge with easy curves and gradients. The building of the narrow gauge line, however, caused industrial development and population growth rendering it inadequate and entailing both an enlargement of the gauge and changes of location. The first line, therefore, was essential to bring about the construction of the second; and on this ground a reasonable portion of the loss due to the abandonment of one line may be classed as a developmental expense, and included in the cost of the new line in the same manner as the false work on a bridge is included as part of the cost of the permanent structure.[10]

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[8] The following are important cases in which "going value" has been defined:
National Water Works v. *Kansas City,* 62 Fed. Rep. 853.
Kennebec Water District v. *Waterville,* 97 Maine 185; 54 Atl. 6.
Gloucester Water Supply Co. v. *Gloucester,* 179 Mass. 365; 60 N. E. 977.
Town of Bristol v. *Bristol & W. Water Works,* 23 R. I. 274; 49 Atl. 974.
Norwich Gas & Electric Co. v. *City of Norwich,* 76 Conn. 565; 57 Atl. 746.
Omaha v. *Omaha Water Co.,* 218 U. S. 180.
Public Service Gas Company v. *Public Utility Commissioners of New Jersey,* 85 N. J.; 87 Atl. 651.

[9] "Going value," however, is frequently confused with "good-will." Thus

One of the so-called intangible items that is generally not given its proper weight in valuations of large concerns is the cost of assembling expert workmen to construct, inaugurate, and efficiently operate the enterprise. In all new business undertakings there is generally heavy initial expense of training the construction and operating forces. Accordingly, operating efficiency, arising from a trained and well-disciplined working organization, is frequently the result of actual investment. It is, therefore, an essential element in the "reproduction value of a going concern." That it is a neglected element is due largely to the fact that neither the courts nor the general public can comprehend fully all the items of expenditure in the building up of a successful business. It is the function of economists to ascertain all of the necessary and proper elements of cost or value that are involved in the *final completion* of a public utility, built in a manner conforming to practical human experience with full allowance for the fallibility of human judgment.

the Georgia Railroad Commission in a recent case: "As we understand the term, it means a value due to the fact that a plant has consumers actually using its product; that it is in actual and successful operation and has attached to it a developed business." See *Public Service Regulation,* Sept., 1914, p. 502.

[10] For an early estimate of the "developmental cost" of a railroad system, see Eugene V. Smalley, *History of the Northern Pacific Railroad,* p. 64.

3. *Depreciation.* The Valuation act requires that an estimate be made of the "cost of reproduction less depreciation." The meaning of the term "less depreciation" as used in the act, the methods appropriate for the ascertainment of the amount thereof, and the values or elements of value which may offset the same, are therefore among the prominent matters requiring adjustment in the valuation task.

Provisions for losses in value due to depreciation are a different matter altogether in valuations from depreciation provisions common in accounting practice. This is particularly manifest in the case of a composite property such as a railroad. It has been pointed out by Mr. Frederick A. Delano and Mr. Richard J. McCarty[11] that the depreciated condition of a railroad property *in use* is seldom below 50 per cent, and on a property well maintained the condition per cent (*i.e.*, original condition less depreciation) is not very much below 100 per cent. In ordinary business practice, provision for depreciation (particularly when based on so-called "mortality tables") covers the cost of renewal when the piece of property in question is expected to reach a condition requiring renewal. It has no reference to loss of original condition due to use. In other words, depreciation accounting aims to provide for the replacement in bulk of the capital investment in an item of property *at the time when such property is no longer profitable to retain in use.* In this way the renewal expense, as well as the depreciation expense, is prorated over the period of the life of the use of the property. This method cannot, therefore, be properly applied in valuation. In valuation, it is not a matter of providing for the replacement of capital investment. It is merely a matter of determining the investment represented in the property on a definite date. If the property is absolutely new, the condition is 100 per cent; but, since through use or lapse of time some deterioration from the original condition may result, there may be a certain loss of value, though not necessarily. This loss in condition has no necessary relation to depreciation accounting. Accordingly, depreciation accounts cannot properly be used for measuring condition per cent.[12] In the most recent report (1914) of the committee on railroad valuation of the National Association of Railway Commissioners, it is admitted that there is a distinction between depreciation as an engineering question and as an accounting question. This report states:

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[11] F. A. Delano, "Application of a Depreciation Charge in Railway Accounting," in *Journ. Pol. Econ.*, vol. 16 (Nov., 1908), p. 585; Richard J. McCarty, *Depreciation of Railroad Property* (Kansas City, 1914).

[12] This opinion has been supported by Mr. Charles Hansel, a valuation engineer, who holds that "In the determination of the present reasonable value of the segregated parts of a railroad or other public utility, we are not

> From the engineering aspect we get light upon depreciation by considering it as a condition at a given time of a piece of property as compared to new. The bookkeeping aspect has to do with setting up of a bookkeeping method for the purpose of accumulating a fund which in a given time on a straight line, curve or other formula, will accumulate a certain amount of money. One deals with a theoretical condition; the other, with actual. Whenever an attempt is made to determine the reproduction cost less depreciation, we of necessity must follow the condition per cent idea and deal with the actual.

Mr. McCarty, vice-president of the Kansas City Southern Railway, in his pamphlet entitled *Depreciation of Railroad Property*, cites the instance of one wooden trestle costing $1000 which it is necessary to renew each year, and another trestle built at a cost of $1500 but having an expectation of ten years' use. He concludes that in the first case the cost of maintenance in ten years will be $10,000; and in the second instance, but $1500. The apparent disparity is due to the failure to distinguish between the renewal expense and actual depreciation or loss of condition. With the $1000 trestle it is merely a matter of annual renewal, whereas in the case of the $1500 trestle, because of annual accounting periods, there is the element of annual loss of condition over ten years of $50 per year and also the minimum cost of replacement, $1000, at the end of ten years. In making a valuation of the trestle, the minimum value in either case would be in the neighborhood of $1000. In accounting for the investment represented in the trestle which is renewed annually, the books at the end of the year, *i.e.*, the time just previous to the renewal of the trestle, may show full capital investment for this item, or, instead, a renewal or reserve fund of $1000. It can be seen, therefore, that a value of approximately $1000 may be put on the property, though the books may show the value entirely extinguished—this value having been converted through charges to income into other forms of assets.[13]

assisted by any formula of depreciation to be applied as an accounting method." *Proceedings of American Society of Civil Engineers*, vol. XI (April, 1914), p. 1212.

[13] Professor A. A. Young in a recent article on "Depreciation and Rate Control" (*Quart. Journ. Econ.*, Aug., 1914), concludes: "In valuations for

The failure to properly distinguish the accounting concept from the engineering concept of depreciation is resulting in much confusion and controversy. The engineering profession, because of its predominance in recent valuation work, tends to invade a field hitherto beyond its own bailiwick. As pointed out by vice-president McCarty of the Kansas City Southern Railway, the work of the engineer terminates at the point at which the quantities and values for use of the different parts of the physical property of any given public utility shall have been determined, and from this point forward the problem ceases to have particular significance to him. The reason for this is that the determination of the elements of value of a public utility, and the application of such values in determining the amount on which a public service corporation is entitled to a fair rate of return, are problems of an entirely different character and belong to entirely different departments of thought and experience. [14]

The engineering idea of depreciation with respect to units of physical property is primarily a measure of condition of physical parts. There is accordingly no necessity to compute estimates from the standpoint of probable life, though as a bookkeeping exigency this is required in modern accounting practice. A locomotive after several years' use may perform its service more adequately than when first put into operation, and, if after a number of years it is constantly restored to full efficiency through operating expenditures (even though all its original parts have been entirely renewed), there will be no real depreciation other than that represented by deferred maintenance. Of course, the element of obsolescence may be present, but this is an entirely different matter. Obsolescence is a contingency which may become a fact without reference to physical condition. Experience furnishes no safe basis for its future trend, and hence it is not adjustable to a formula.

The principles of depreciation as defined in accounting practice and from an engineering viewpoint are not necessarily conflicting. In fact, under certain conditions the amounts determined by each method may be very similar, and the "depreciation reserve" may

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purposes of rate control, no deduction should be made on account of the depreciation of large and varied properties, except for depreciation allocated to a period in which depreciation accruals are regularly charged to operating expenses."

[14] *Proceedings of the American Association of Civil Engineers,* vol. XI, no. 4 (Apr., 1914).

be used as a basis for estimating actual physical deterioration of value. For example, in relining blast furnaces, where the relining can only be done conveniently at relatively long intervals, a depreciation reserve set aside for this purpose may be used fairly to estimate the loss in value due to the use of the furnace. In this case the depreciation reserve covers merely the deferred maintenance which has been necessarily deferred because of the fact that when the furnace is in operation the repairs cannot be made concurrently with the deterioration. In fact, the reserve is required merely because the intervals at which the relining is done do not coincide with the periods when the earnings are computed.

The different principles involved in engineering valuation and prevailing bookkeeping methods may be illustrated with reference to appreciation. It is widely contended that appreciation of certain items of property such as land, embankments, etc., is an offset to depreciation of certain wasting assets; but in common accounting practice, although depreciation is considered a loss which must be deducted from profits, *i.e.*, a debit against operation, appreciation is not placed as a gain or a credit. The reason is that no entry is made on the books to cover any increase in the value of assets unless such increased value arises from a transfer or sale. Thus, while entries may be made to cover depreciation, no entries are generally made to cover appreciation unless such appreciation is realized in cash or equivalent.

The appreciation of a railroad property is undeniably a significant element of value.[15] It may be due to other causes than the so-called "unearned increment" arising from natural causes and from increase of population and wealth. The increment due to solidification and adaptation is not a work of nature similar to reforestation. It was recognized early in railroad history that current maintenance during a number of years after a line is in operation covers in part additional construction cost. The repairing of slopes, of cuts and embankments, the improvement of drains and water courses, the solidification of sub-grade and ballast, all involve considerable expense which has not been added to capital account.[16]

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[15] For decisions involving the appreciation of land values, see *Wilcox* v. *Consol. Gas Co.,* 212 U. S. 52; *Stanislaus* v. *Irrigation Co.,* 192 U. S. 215; *San Diego Land Co.* v. *Nat. City,* 174 U. S. 757; *L. & N. R. R.* v. *R. R. Com. of Ala.,* 196 Fed. 800.

[16] See (N. Y.) *State Engineer's Report on Railroads,* 1854, p. 6, where it is stated: "It has been questioned whether the cost of these items is a proper charge to construction or to cost of operation."

The general practice of the state commissions has been to deduct a percentage for depreciation from the various units entering into the valuation. It would seem that appreciation ought to be allowed for in the same manner, and in many cases it has been. In making an appraisal of the Spokane and Inland Empire Railway, the public utilities commission of Washington fixed 110 per cent of the reproduction cost new as the value of the grading at the time the valuation was made. In Minnesota, appreciation was provided for by a separate item, "adaptation and solidification of roadbed," amounting for all the roads in the state to $11,743,007, which was 21 per cent of the reproduction cost of the grading, clearing, and grubbing. In the valuation by the Massachusetts commission of the New York, New Haven and Hartford an allowance of $500 per mile, or a total of $805,000, was made for solidification, this being considered by the commission as very conservative. An allowance was also made by the Washington commission in its railroad valuation·

4. *Land valuation.* The problem relative to the determination of land values is twofold: (a) What method is to be applied in the determination of the present or actual value of the right-of-way and (b) how is this method to be applied uniformly to all classes, terminal, city, suburban, and agricultural land?

No definite legal principles have been established for the valuation of railroad right-of-way. Court opinions in such matters have been confined largely to taxation disputes. As pointed out by Mr. F. W. Stevens of the New York Central Lines,[17] however, these economic facts are well established:

> (a) The use of the right-of-way requires it to be considered as a homogeneous parcel.
>
> (b) As a homogeneous parcel, it has greater value based on its use than the great number of little parcels which were acquired in making up the whole.

This last statement is confirmed in the well-known dictum of the Supreme Court:

> There is a value created by and resulting from the combined operation of its (*i.e.,* the railroad) parts as one continuous line. (*C.C.C. & St. Louis Ry. Co.* v. *Backus,* 154 U. S. 439.)

The state practice thus far in computing right-of-way values has been confined largely to the ascertainment of the current prices of neighboring lands. There is an endeavor to limit the comparisons to lands in the vicinity "similarly situated," though it is rarely that one parcel of land *equally useful for railroad purposes* has all the physical, geographical, and topographical characteristics of a neighboring parcel. A public service company under nearly all circumstances is usually compelled to pay much more for right-of-way or terminal land than the prevailing or market prices. Moreover, in condemnation proceedings, the company must pay a price based on the most profitable possible use. The use to which land is put thus changes its value. Land which is very desirable for railroad right-of-way may be worthless for agricultural or grazing purposes; but if the same land is adaptable as a mill site or as a quarry, its most profitable use for any of these purposes will determine the assessment of damages to the owner because of its appropriation. In addition, there is extra cost or enhanced value for railroad purposes of any particular parcel because of the necessity for continuity of the right-of-way and the damages to the lay-out of adjoining lands arising from this necessary continuity.

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[17] F. W. Stevens, *The Valuation of Railroad Right-of-way* (1914).

Another element of added cost is the fact that right-of-way land is bought on a "retail, small-parcel basis," and therefore a higher price must be paid than when large uneven tracts are purchased without subdivision.[18] It has been the practice in previous railroad appraisals to allow for these and other added costs by the application of multiples. This means that to the computed average value of adjoining lands "similarly situated," a multiple (which has varied from 25 per cent to over 300 per cent) is added in an appraisal of right-of-way.

The use of multiples has been discountenanced in Justice Hughes' opinion in the Minnesota rate case. The objection here appears to have been directed against this "conjectural" method of appraisal and does not constitute a denial of enhanced cost of land for railroad purposes.[19] The probable effect of the Minnesota rate case will be the necessity for determining and stating the value of each piece of land independently—a distinctly expensive proceeding, the results of which may not be more satisfactory than the "multiple" method.

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[18] The California public service commission in the Los Angeles and Santiago Beach Railway case recently decided, based the value of land on the wholesale price, i.e., the amount real estate men would pay for tracks before subdivision. The company claimed that retail prices should be used. A mean between the two values was finally agreed upon. In accepting this, the commission remarked that "the mere fact that acreage property is subdivided into lots does not necessarily increase the value therof, nor does the fact that property is held at a certain figure indicate its true value." This would assume that the "similarly situated" basis of land appraisal has no bearing on public utility valuation, and that the purchase of large tracts of land by real estate operators is entirely without profit, all of which is contrary to actual fact.

In connection with right-of-way and land valuation, the incidental costs are an important element requiring careful consideration. Land rights include riparian rights and rights over streets and highways; also mining rights under tracks, in addition to the so-called severance and other damages paid to adjoining property owners and to communities. "A land-owner is entitled not only to the value of the ground taken, but also to the diminution in value of that from which it is severed."[20] Damage costs, such as the changing of highway location or of the bed of a stream, the obstruction of bays or inlets, and the like are not represented in any physical item of the property, and, in the absence of actual records, may be entirely overlooked in an appraisal.

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[19] The public service commission of the state of Washington recently discarded one of its previous valuations on the ground that the Minnesota rate case decision limited right-of-way values to the average fair market value of similar land in the vicinity.

[20] *Rochester and Syracuse R. R. Co.,* v. *Budling,* 6 How. 467.

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